

## **ABSTRACT OF THE DISCLOSURE**

A coherent differential absorption lidar (DIAL) device 2 comprises a transmit portion 4 for directing a combined light beam to a remote target and a receive portion 5 for receiving light returned from the remote target and for coherently mixing the received light with its associated local oscillator beam. The combined beam comprises at least two component light beams of discrete wavelengths. The device further comprises a signal correction means. The signal correction means comprising a means for extracting a portion of each component light beam from the transmit portion, a means for introducing a frequency difference 62 between each extracted component light beam and its associated local oscillator beam and a means for directing the extracted beam into the receive portion. This provides an additional correction signal thereby improving device performance.